



Company: Esso Australia Pty Ltd.

Well: A-20a  
Field: Bream A  
Rig : Prod4 / Crane  
Country: Australia

RST-C  
Sigma  
Survey

LOCATION

Gippsland  
Basin  
Bass Strait

Elev.: K.B. 32.82 m  
G.L. -59 m  
D.F. 32.82 m

Permanent Datum: M.S.L.  
Log Measured From: D.F.  
Drilling Measured From: D.F.

Elev.: 0 m  
32.8 m above Perm. Datum

State : Victoria

Max. Well Deviation  
57 deg

Longitude  
147 46'15"E

Latitude  
038 30'04"S

Rig : Prod4 / Crane

Field: Gippsland

Well: A-20a

Company: Esso Australia Pty Ltd.

Logging Date				17-Jun-2007							
Run Number				One							
Depth Driller				2234 m							
Schlumberger Depth				2234 m							
Bottom Log Interval				2234 m							
Top Log Interval				2175 m							
Casing Fluid Type				Production Fluids							
Salinity											
Density											
Fluid Level				591 m							
BIT/CASING/TUBING STRING											
Bit Size				8.500 in							
From											
To											
Casing/Tubing Size				7.000 in							
Weight				26 lbm/ft							
Grade				L-80							
From				12.2 m							
To				2309 m							
Maximum Recorded Temperatures				206 degF							
Logger On Bottom				17-Jun-2007		14:50					
Unit Number		Location		889		Prod4 / Ausl					
Recorded By				G Wright & S Gilbert.							
Witnessed By				B White & B Robinson.							

				Run 1					
Oil Density									
Water Salinity									
Gas Gravity									
Bo									
Bw									
1/Bg									
Bubble Point Pressure									
Bubble Point Temperature									
Solution GOR									
Maximum Deviation				57 deg					
CEMENTING DATA									
Primary/Squeeze				Primary					
Casing String No									
Lead Cement Type									
Volume									
Density									
Water Loss									
Additives									
Tail Cement Type									
Volume									
Density									
Water Loss									
Additives									
Expected Cement Top									
Logging Date									
Run Number									
Depth Driller									
Schlumberger Depth									
Bottom Log Interval									
Top Log Interval									
Casing Fluid Type									
Salinity									
Density									
Fluid Level									
BIT/CASING/TUBING STRING									
Bit Size									
From									
To									
Casing/Tubing Size									
Weight									
Grade									
From									
To									
Maximum Recorded Temperatures									
Logger On Bottom		Time							
Unit Number		Location							
Recorded By									
Witnessed By									

## DEPTH SUMMARY LISTING

Date Created: 13-JUN-2007 13:28:25

### Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-EB	Type:	PSDS/OSDS	Type:	2-32ZT
Serial Number:	6373	Serial Number:	325357	Serial Number:	24425
Calibration Date:	4-Jan-2007	Calibration Date:	10-Jun-2007	Length:	6449.87 M
Calibrator Serial Number:	9	Calibrator Serial Number:	1174	Conveyance Method: Wireline Rig Type: Rigless	
Calibration Cable Type:	2-23ZT	Calibration Gain:	0.92		
Wheel Correction 1:	-2	Calibration Offset:	199.00		
Wheel Correction 2:	-4				

### Depth Control Parameters

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	Solar Composite Log
Reference Log Run Number:	
Reference Log Date:	

### Depth Control Remarks

1. IDW used as primary depth control.
2. Z-chart used as secondary backup
3.
4.
5.
6.

#### DISCLAIMER

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OTHER SERVICES1
OS1: 2 1/8" Phased
OS2: Perforation .
OS3: 7" MPBT .

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Log correlated to ExxonMobil composite supplied with logging program.	
Maximum well deviation = 57 degrees at 869.3m MDKB.	
Objective: conduct RST Sigma survey from HUD to 2180m MDKB	
making 2 passes @ 900ft/hr with the well shut in .	
SBHP: 2634 psia	
SBHT: 206 degf	
HUD: 2234 m MDKB	
Following this run, the well was down perforated and	

Crew : J Annear,A Hall,P Lawrence,C Shiells.

RUN 1

Ausl0732822  
14C0-302  
591 m

## LOGGED INTERVAL

START

STOP

## EQUIPMENT DESCRIPTION

RUN 1

## SURFACE EQUIPMENT

WITM-A  
PSC\_16MHZ 806

## DOWNHOLE EQUIPMENT

AH-SWBS-B 763

11.93

AH-SWBS-B 762

11.24

AH-SWBS-B 761

10.55

MH-SWHS-A 726

Detail MT  
TelStatus  
CTEM

**1**

9.54

9.87





9.54

PSC-A 806  
PSPT-B 827  
PSTC 806  
PBMS-B 827  
CQG\_F\_Mano 827  
RTD\_Thermometer 827  
GR 827  
CCL 827  
PBMS 827

GR

\_\_\_\_\_ 8.41

Well\_Temp  
CQG Manom  
CCL  
PBMS PSTC

	7.48
	7.37
	7.25
	7.02

RST-C BLK2

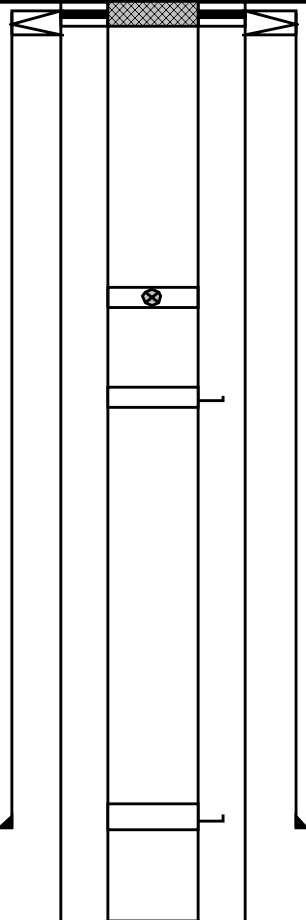
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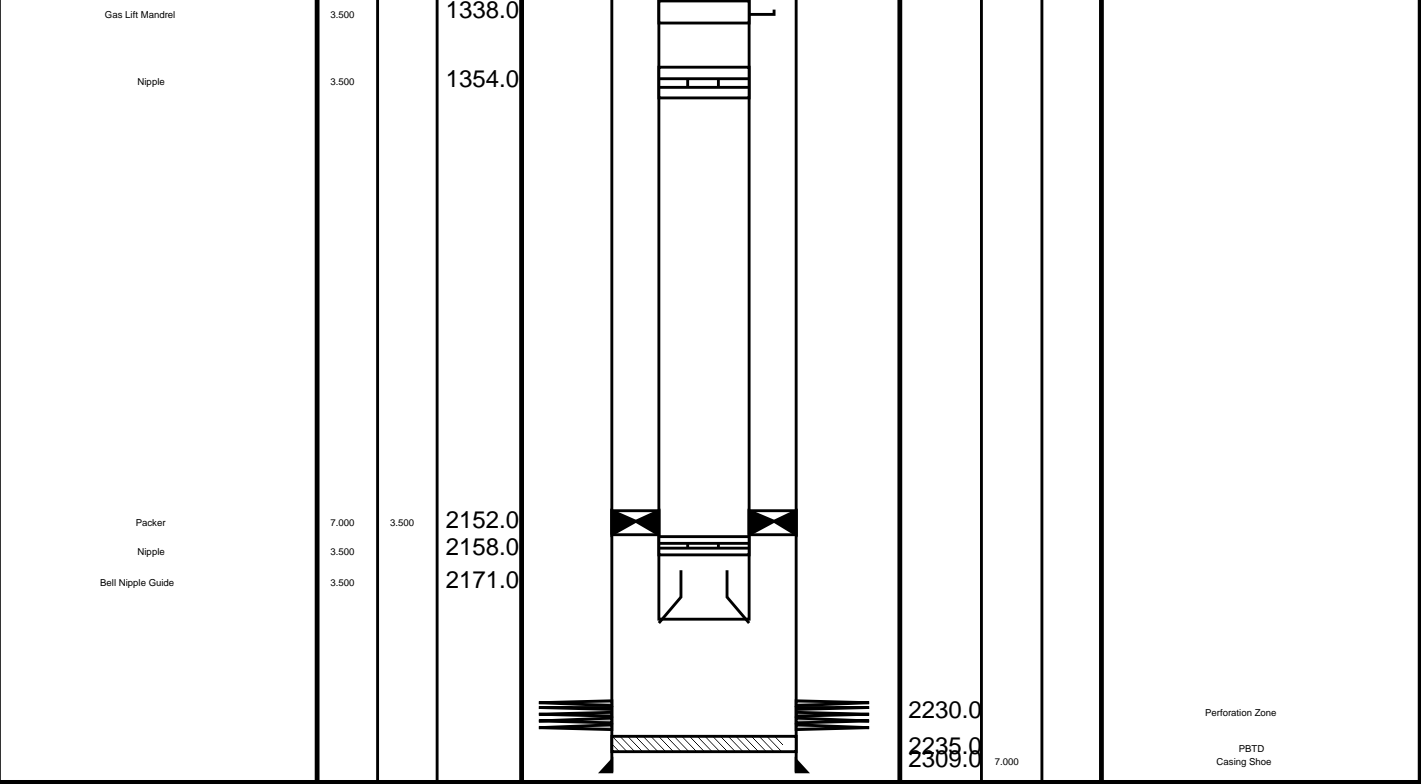
RSCH-A 98  
RSC-C 116  
RSS-A 93  
RSXH-A 179  
RSX-C 101

RSC-A Far 4.24  
RSC-A PNG  
RSC-A Nea  
RSX-A PNG 4.09

Tension HV 0.00  
TOOL ZERO

MAXIMUM STRING DIAMETER 1.72 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN METERS

Production String	(in)		(m)	Well Schematic	(m)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
Tubing	3.500		11.0		12.9	12.000		Casing String Liner Hanger
Tubing Hanger	7.000	3.500	10.0		12.2	10.750	7.000	
Shut-in Valve	3.500		450.0					
Gas Lift Mandrel	3.500		595.0					
Gas Lift Mandrel	3.500		1154.0		1123.1	10.750		Casing Shoe



# Job Event Summary

MAXIS Field Log

## Schlumberger Job Event Summary

Time	Elapsed Time	Depth (M)	File
Simulated Log	17-Jun-2007 13:28	000:16	RST_PSP_004LUP
Log Pass (down)	17-Jun-2007 13:57	000:53	55.2 - 2231.3 RST_PSP_007LDP
Log Pass (up)	17-Jun-2007 14:50	000:13	2235.4 - 2136.0 RST_PSP_008LUP
Log Pass (up)	17-Jun-2007 15:06	000:20	2237.4 - 2169.4 RST_PSP_010LUP
Log Pass (up)	17-Jun-2007 15:28	000:14	2235.6 - 2169.0 RST_PSP_011LUP

Company: Esso Australia Pty Ltd.

Well: A-20

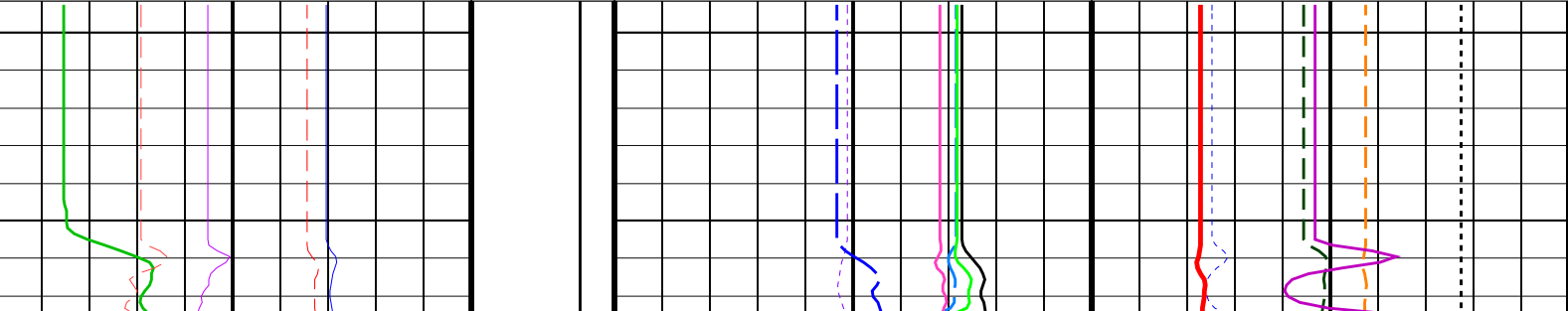
Input DLIS Files					
DEFAULT	RST_PSP_011LUP	FN:10	PRODUCER	17-Jun-2007 15:28	2235.6 M 2169.0 M
Output DLIS Files					
DEFAULT	RST_PSP_014PUP	FN:13	PRODUCER	17-Jun-2007 15:46	2235.7 M 2164.1 M

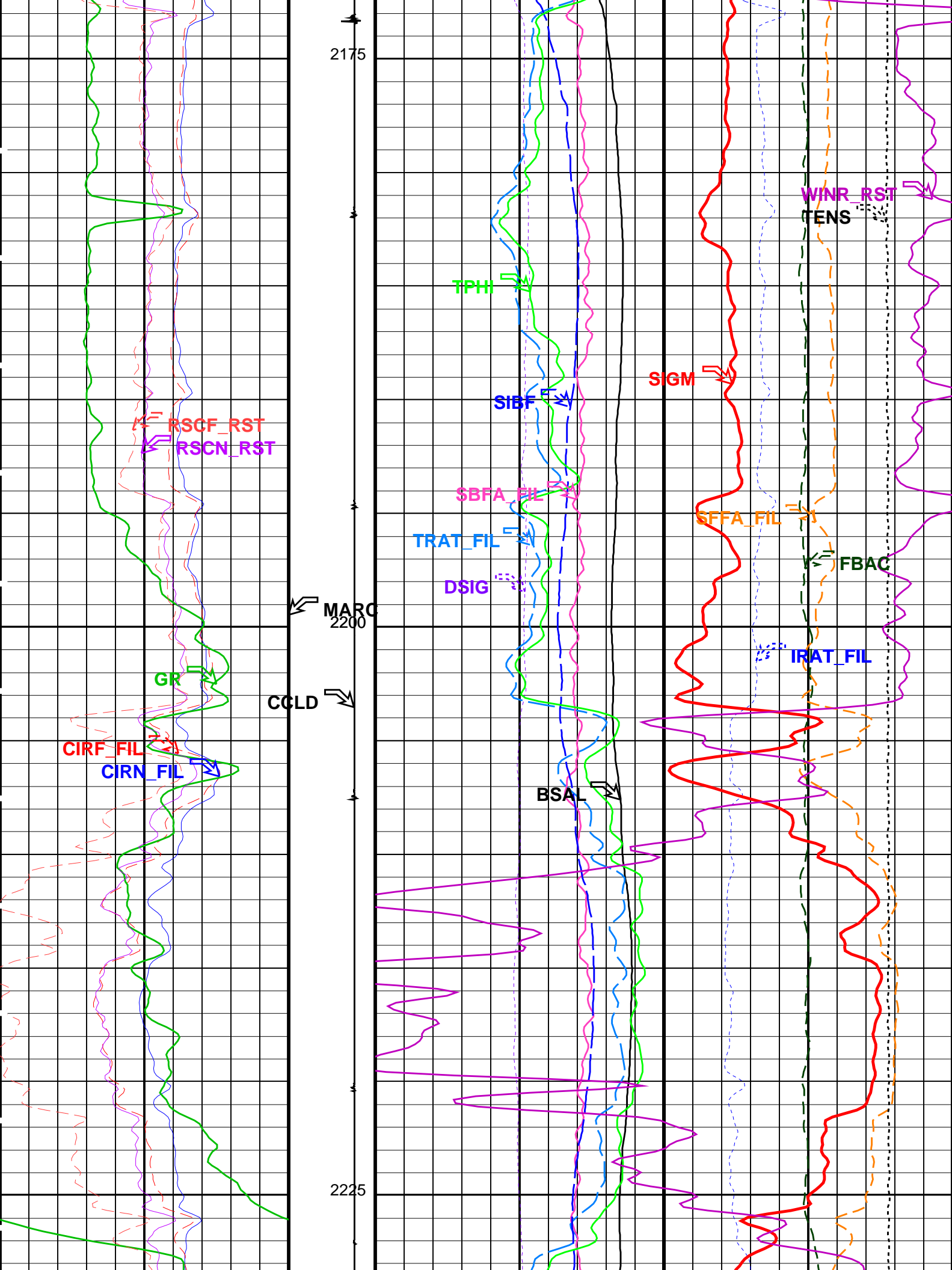
OP System Version: 14C0-302					
MCM					
RST-C	14C0-302	PSPT-A/B		14C0-302	

PIP SUMMARY

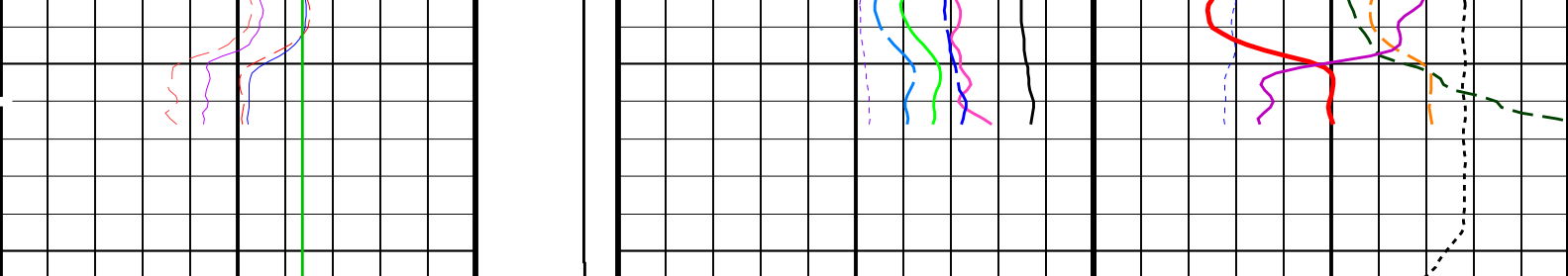
 Time Mark Every 60 S

		RST Sigma (SIGM)	
60		(CU)	
		0	
		RST Weighted Inelastic Ratio (WINR_RST)	
0.4		(----	
		0	
		RST Porosity (TPHI)	
0.6		(V/V)	
		0	
RST Far Effective Capture CR (RSCF_RST)		RST Sigma Borehole Fluid (SIBF)	
45		100	
(----		(CU)	
		0	
RST Near Effective Capture CR (RSCN_RST)		Sigma Borehole Far Apparent (SBFA_FIL)	
45		150	
(----		(CU)	
		0	
		Tension (TENS)	
		0	
		(LBF) 3000	
RST Capture to Inelastic Ratio Far (CIRF_FIL)		RST Capture Ratio (TRAT_FIL)	
5		1.5	
(----		(----	
		0.5	
		60	
		Sigma Formation Far Apparent (SFFA_FIL)	
		(CU)	
		0	
RST Capture to Inelastic Ratio Near (CIRN_FIL)		RST Sigma Difference (DSIG)	
2.5		-30	
(----		(CU)	
		30	
		MCS Far Background (filtered) (FBAC)	
		0	
		(CPS)	
		5000	
		Gamma Ray (GR)	
0		150	
(GAPI)			
		RST Borehole Salinity (BSAL)	
		450	
		(PPK)	
		-50	
		RST Inelastic Ratio (IRAT_FIL)	
		0.75	
		(----	
		0	









Gamma Ray (GR) (GAPI)		Discriminat ed CCL (CCLD) 3 (V) -1	RST Borehole Salinity (BSAL) (PPK)		RST Inelastic Ratio (IRAT_FIL) (----		
0	150		450	-50	0.75	0	
RST Capture to Inelastic Ratio Near (CIRN_FIL)		Minitron Arc Detection (MARC) 0 (---- 5	RST Sigma Difference (DSIG) (CU)		MCS Far Background (filtered) (FBAC) (CPS)		
2.5	0		-30	30	0	5000	
RST Capture to Inelastic Ratio Far (CIRF_FIL)			RST Capture Ratio (TRAT_FIL) (----		Sigma Formation Far Apparent (SFFA_ FIL) (CU)		
5	0		1.5	0.5	60	0	
RST Near Effective Capture CR (RSCN_ RST)			Sigma Borehole Far Apparent (SBFA_ FIL) (CU)		Tension (TENS) (LBF)		
45	0		150	0			
RST Far Effective Capture CR (RSCF_ RST)			RST Sigma Borehole Fluid (SIBF) (CU)				
45	0		100	0			
			RST Porosity (TPHI) (V/V)				
			0.6	0			
			RST Weighted Inelastic Ratio (WINR_RST)				
			0.4	0			
			RST Sigma (SIGM) (CU)				
			60	0			

#### PIP SUMMARY

Time Mark Every 60 S

### Parameters

DLIS Name	Description	Value	
RST-C: Reservoir Saturation Pro Tool C			
AIRB	RST Air Borehole	No	
BHS	Borehole Status	CASED	
BSALOPT	RST Borehole Salinity Option	Unknown	
BSFL	RST Borehole Salinity Filter Length	51	
DFPC	RST Depth Filter Processing Constant	One	
DFPC_TDTL	RST Depth Filter Processing Constant (TDT-like)	Two	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
NORM_IRAT_RST	RST Normalized Inelastic Ratio	0.48	
NORM_SIGM_RST	RST Normalized Sigma	30	CU
RGAI	Near/Far Gain Calibration Ratio	1	
SMBMO	RST Sigma Mode Background Minitron Off	No	
TIER_SIGM	RST Sigma Acquisition Mode	0_RST_Sigma	
PSPT-A/B: Production Services Logging Platform			
BHS	Borehole Status	CASED	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
System and Miscellaneous			
BS	Bit Size	8.500	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	7.000	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	0.2	M
PP	Playback Processing	NORMAL	

Format: RST\_SIG\_ANSW

Vertical Scale: 1:200

Graphics File Created: 17-Jun-2007 15:46

OP System Version: 14C0-302						
MCM						
RST-C	14C0-302	PSPT-A/B		14C0-302		
Input DLIS Files						
DEFAULT	RST_PSP_011LUP	FN:10	PRODUCER	17-Jun-2007 15:28	2235.6 M	2169.0 M
Output DLIS Files						
DEFAULT	RST_PSP_014PUP	FN:13	PRODUCER	17-Jun-2007 15:46		

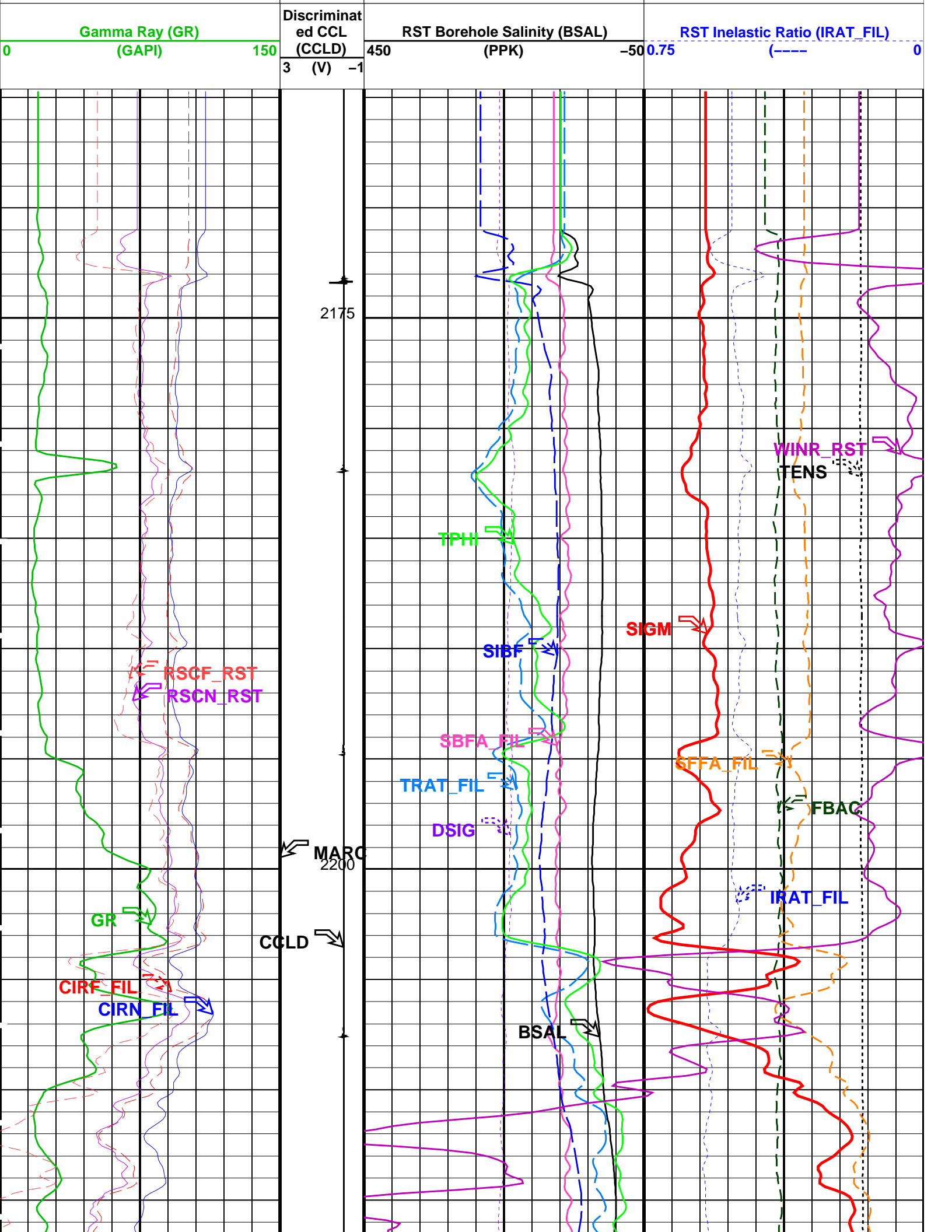


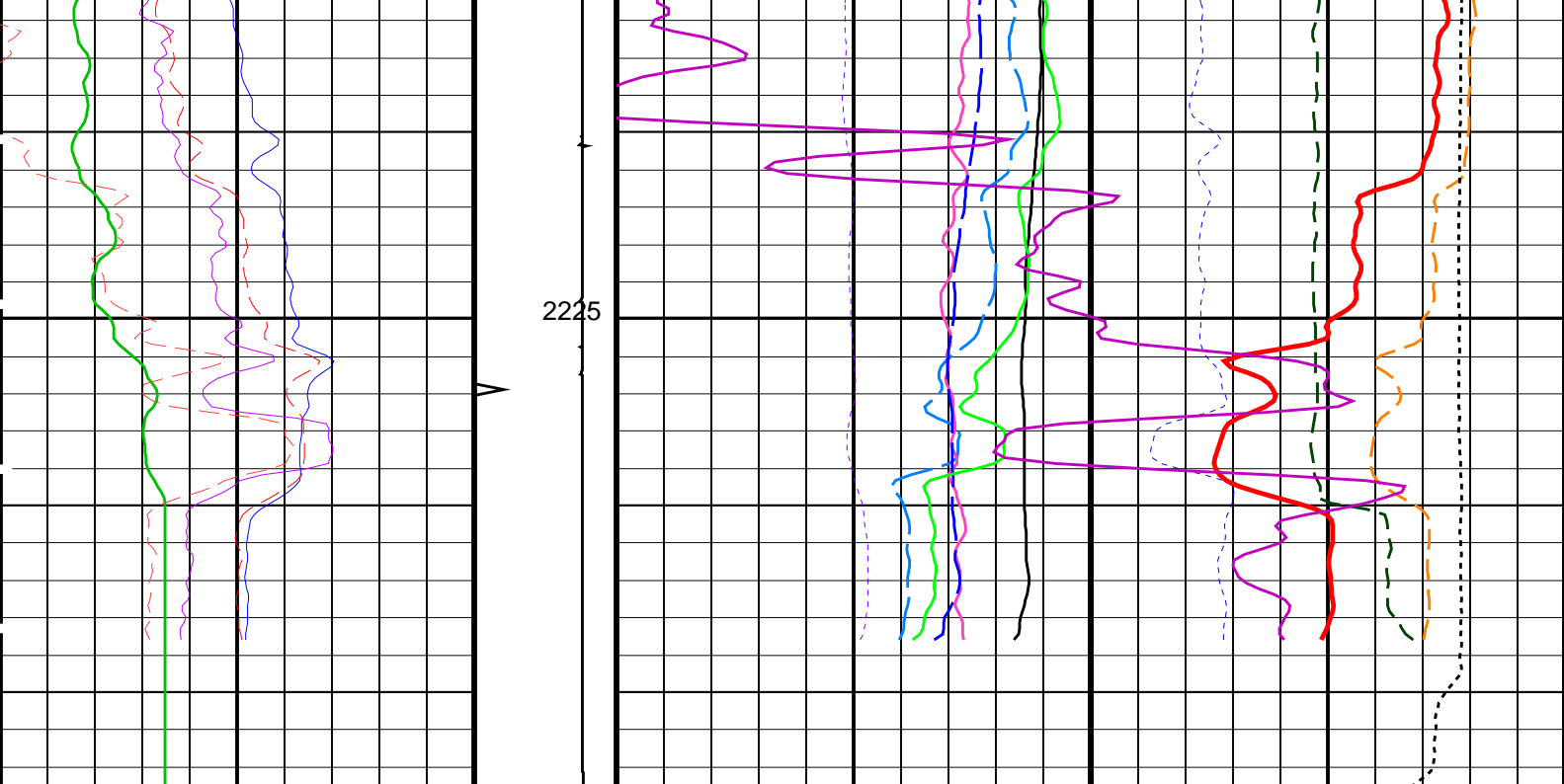
RST-C Sigma Pass # 1

MAXIS Field Log

Company: Esso Australia Pty Ltd.					Well: A-20	
Input DLIS Files						
DEFAULT	RST_PSP_010LUP	FN:9	PRODUCER	17-Jun-2007 15:06	2237.4 M	2169.4 M
Output DLIS Files						
DEFAULT	RST_PSP_013PUP	FN:12	PRODUCER	17-Jun-2007 15:45	2237.5 M	2164.5 M
OP System Version: 14C0-302						
MCM						
RST-C	14C0-302	PSPT-A/B		14C0-302		

PIP SUMMARY					
		RST Sigma (SIGM)			
		60 (CU) 0			
		RST Weighted Inelastic Ratio (WINR_RST)			
		0.4 (----) 0			
RST Far Effective Capture CR (RSCF_RST) 45 (----) 0		RST Porosity (TPHI)		Sigma Formation Far Apparent (SFFA_FIL) 60 (CU) 0	
		0.6 (V/V) 0			
		RST Sigma Borehole Fluid (SIBF)			
		100 (CU) 0			
RST Near Effective Capture CR (RSCN_RST) 45 (----) 0		Sigma Borehole Far Apparent (SBFA_FIL) 150 (CU) 0		Tension (TENS) 0 (LBF) 3000	
RST Capture to Inelastic Ratio Far (CIRF_FIL) 5 (----) 0		RST Capture Ratio (TRAT_FIL) 1.5 (----) 0.5			
RST Capture to Inelastic Ratio Near (CIRN_FIL) 2.5 (----) 0		RST Sigma Difference (DSIG) -30 (CU) 30		MCS Far Background (filtered) (FBAC) 0 (CPS) 5000	
		Minitron Arc Detection (MARC) 0 (----) 5			





Gamma Ray (GR) (GAPI)	Discriminat ed CCL (CCLD) (V)	RST Borehole Salinity (BSAL) (PPK)	RST Inelastic Ratio (IRAT_FIL) (----
RST Capture to Inelastic Ratio Near (CIRN_FIL) (----	Minitron Arc Detection (MARC) (-----	RST Sigma Difference (DSIG) (CU)	MCS Far Background (filtered) (FBAC) (CPS)
RST Capture to Inelastic Ratio Far (CIRF_FIL) (-----		RST Capture Ratio (TRAT_FIL) (-----	Sigma Formation Far Apparent (SFFA_ FIL) (CU)
RST Near Effective Capture CR (RSCN_ RST) (-----		Sigma Borehole Far Apparent (SBFA_ FIL) (CU)	Tension (TENS) (LBF)
RST Far Effective Capture CR (RSCF_ RST) (-----		RST Sigma Borehole Fluid (SIBF) (CU)	
		RST Porosity (TPHI) (V/V)	
		RST Weighted Inelastic Ratio (WINR_RST) (-----	
		RST Sigma (SIGM) (CU)	

#### PIP SUMMARY

Time Mark Every 60 S

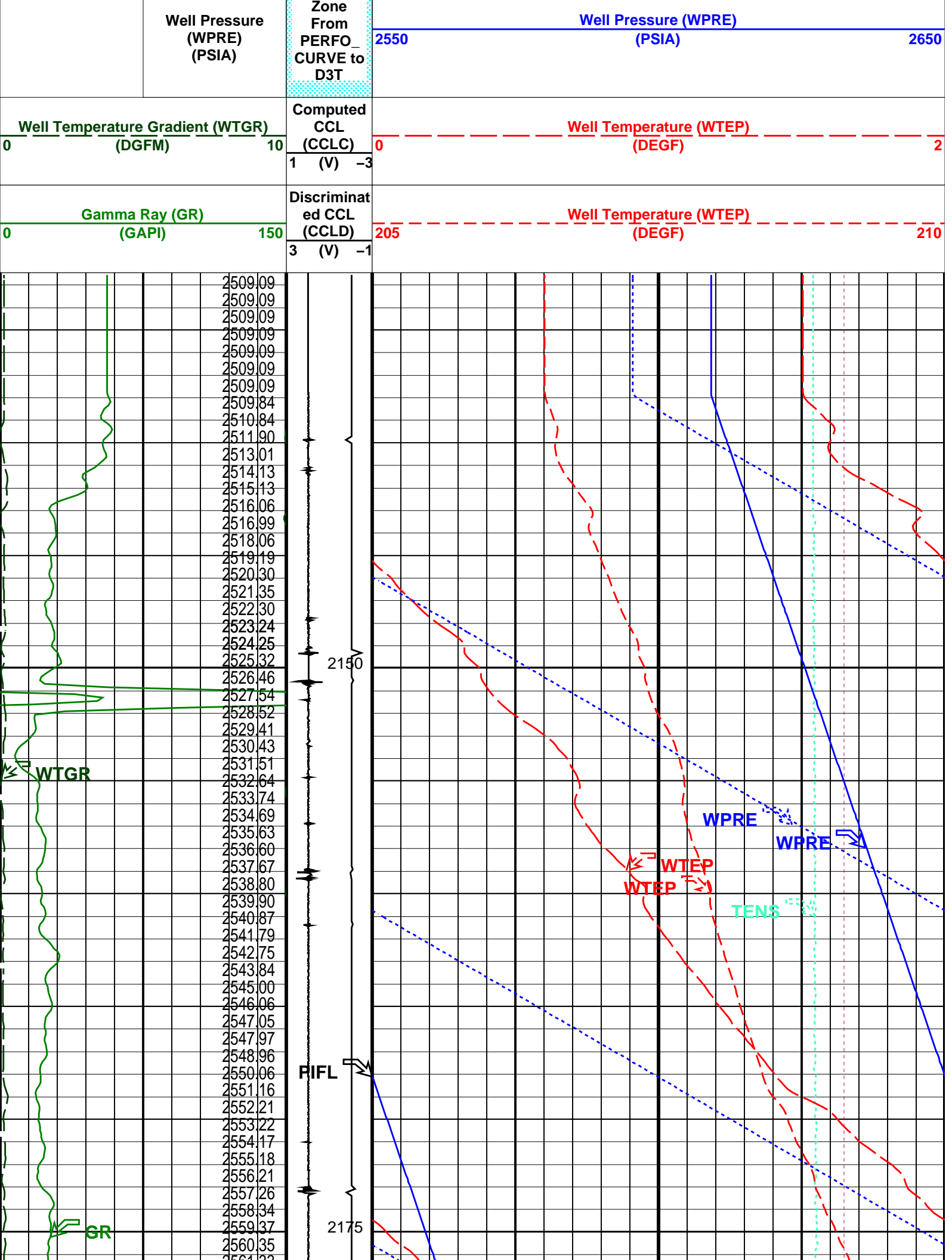
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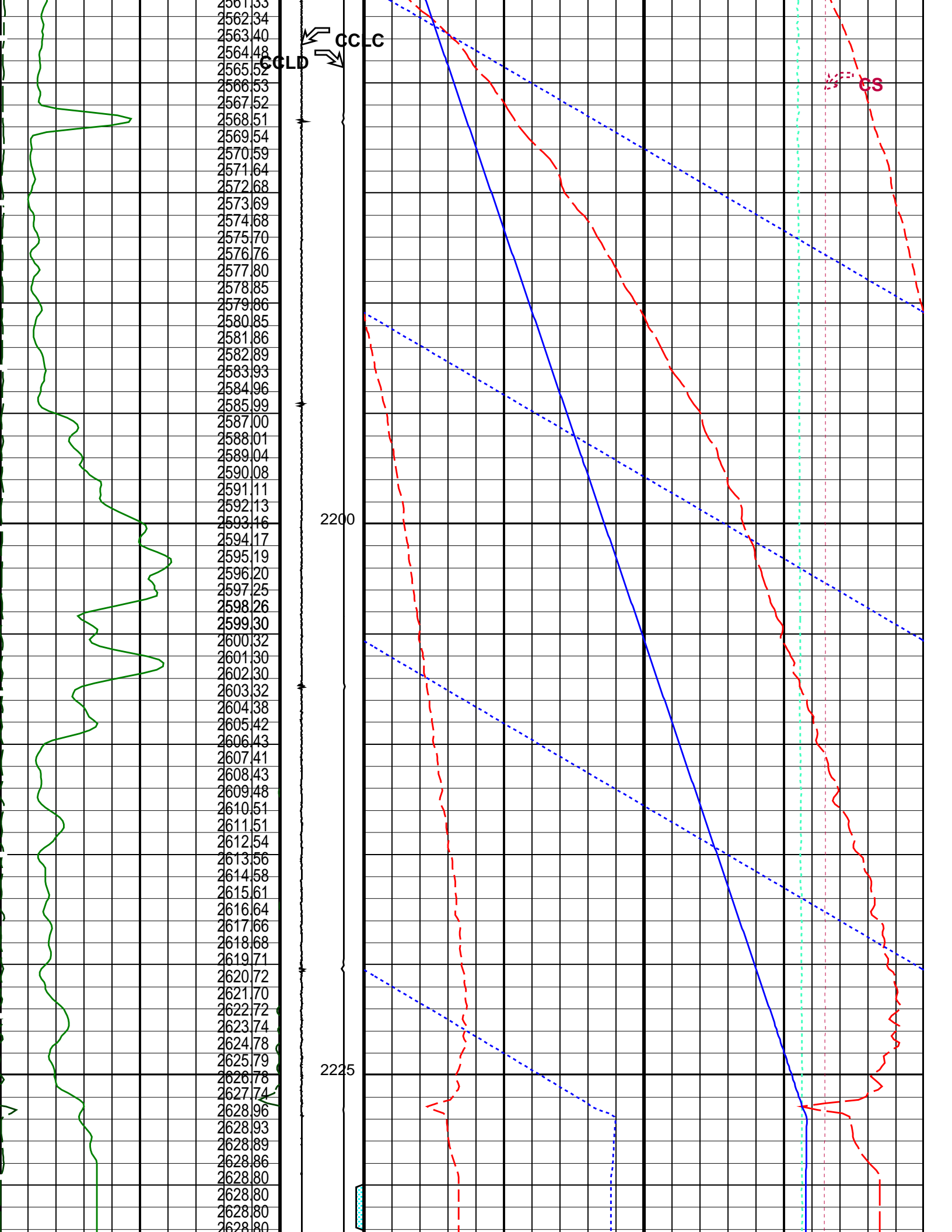
DLIS Name	Description	Value
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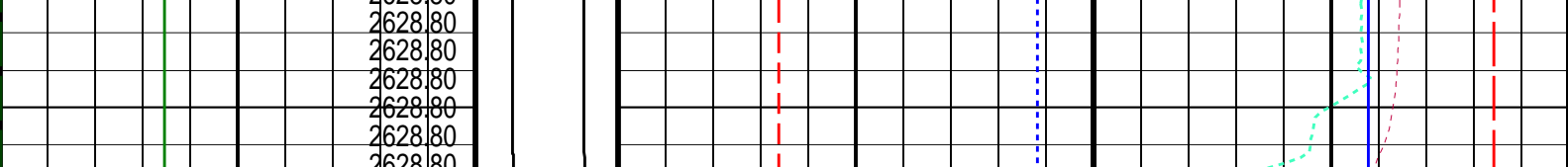
RST-C: Reservoir Saturation Pro Tool C

AIRB	RST Air Borehole	No
BHS	Borehole Status	CASED
BSALOPT	RST Borehole Salinity Option	Unknown
BSFL	RST Borehole Salinity Filter Length	51
DFPC	RST Depth Filter Processing Constant	One

## Perfo







Gamma Ray (GR) (GAPI)		Discriminat ed CCL (CCLD)	Well Temperature (WTEP) (DEGF)	
0	150	3 (V) -1	205	210
Well Temperature Gradient (WTGR) (DGFM)		Computed CCL (CCLC)	Well Temperature (WTEP) (DEGF)	
0	10	1 (V) -3	0	2
Well Pressure (WPRE) (PSIA)		Perfo Zone From PERFO_ CURVE to D3T	Well Pressure (WPRE) (PSIA)	
			2550	2650
			Amplified Well Pressure (WPRE) (PSIA)	
			0	20
			Tension (TENS) (LBF)	
			0	3000
			Cable Speed (CS) (F/HR)	
			0	5000

PIP SUMMARY

Time Mark Every 60 S

Format: PSP\_1\_1 Vertical Scale: 1:200 Graphics File Created: 17-Jun-2007 15:04

OP System Version: 14C0-302  
MCM  
RST-C 14C0-302 PSPT-A/B 14C0-302

Parameters		
DLIS Name	Description	Value
DO	System and Miscellaneous	
PP	Depth Offset for Playback	1.3 M
	Playback Processing	NORMAL

Input DLIS Files						
DEFAULT	RST_PSP_008LUP	FN:7	PRODUCER	17-Jun-2007 14:50	2235.4 M	2136.0 M
Output DLIS Files						
DEFAULT	RST_PSP_009PUP	FN:8	PRODUCER	17-Jun-2007 15:04		

Company: Esso Australia Pty Ltd.

Well: A-20a

Field: Bream A

Rig : Prod4 / Crane

Country: Australia

Schlumberger

RST-C  
Sigma



